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communication to a frequency measurement object for using quality measurement of the radio link of the different frequency carrier. In this method, since communication and measurement of the different frequency carrier are not performed simultaneously, it can be adapted by switching of the radio frequency and it is not necessary to separately provide a radio machine for measuring the different frequency carrier.

IN THE CLAIMS:

Please cancel claims 5, 7, 10, 13, 29, 31, 34, 37, 53, 55, 58, 61, 83-87 without prejudice or disclaimer.

Please enter the following amended claims:

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1. (Amended) A mobile communication system comprising:
transmission control means for providing a vacant period, in which no communication data is present, in one or more of communication frames, and inserting a first control signal which includes a pilot signal to be used for a transmission power control for a forward link in said vacant period.

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3. (Amended) A mobile communication system as set forth in claim 2, wherein said time interval of said first control signal inserted during said vacant period is set to be longer than a time interval of said first control signal in a communication mode where transmission data are present in said communication frame which does not include any vacant periods

4. (Amended) A mobile communication system as set forth in claim 1, wherein said transmission control means provides a vacant period from a timing immediately after a second control signal which includes a pilot signal to be used for a transmission power control for a forward link.

6. (Amended) A mobile communication system as set forth in claim 1, wherein said transmission control means transmits a third control signal which includes a pilot signal to be used for a transmission power control for a forward link immediately after end of said vacant period.

8. (Amended) A mobile communication system as set forth in claim 4, wherein said second control signal includes a pilot signal to be used for a transmission power control for a forward link.

9. (Amended) A mobile communication system as set forth in claim 6, wherein said third control signal includes a pilot signal to be used for a transmission power control for a forward link.

11. (Amended) A mobile communication system as set forth in claim 4, wherein said second control signal includes a transmission power control information for reverse link.

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14. (Amended) A mobile communication system as set forth in claim 4, wherein said second control signal includes a pilot signal to be used for a transmission power control for a forward link and a transmission power control information for reverse link.

15. (Amended) A mobile communication system as set forth in claim 6, wherein said third control signal includes a pilot signal to be used for a transmission power control for a forward link and a transmission power control information for reverse link.

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25. (Amended) A communication control method comprising:
a step of providing a vacant period, in which no communication data is present, in one or more of communication frames, and
a step of inserting a first control signal which includes a pilot signal to be used for a transmission power control for a forward link in said vacant period, for transmission.

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27. (Amended) A communication control method as set forth in claim 26, wherein said time interval of said first control signal inserted during said vacant period is set to be longer than a time interval of said first control signal in a communication mode where transmission data are present in said communication frame which does not include any vacant periods.

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28. (Amended) A communication control method as set forth in claim 25, wherein in said step of providing the vacant period, said vacant period is provided immediately after a second control signal which includes a pilot signal to be used for a transmission power control for a forward link.

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30. (Amended) A communication control method as set forth in claim 25, wherein a third control signal which includes a pilot signal to be used for a transmission power control for a forward link immediately after said vacant period.

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32. (Amended) A communication control method as set forth in claim 28, wherein said second control signal includes a pilot signal to be used for a transmission power control for a forward link.

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33. (Amended) A communication control method as set forth in claim 30, wherein said third control signal includes a pilot signal to be used for a transmission power control for a forward link.

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35. (Amended) A communication control method as set forth in claim 28, wherein said second control signal includes a transmission power control information for reverse link.

38. (Amended) A communication control method as set forth in claim 28, wherein said second control signal includes a pilot signal to be used for a transmission power control for a forward link and a transmission power control information for reverse link.

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39. (Amended) A mobile communication system as set forth in claim 30, wherein said third control signal includes a pilot signal to be used for a transmission power control for a forward link and a transmission power control information for reverse link.

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49. (Amended) A base station in a mobile communication system, comprising:
transmission control means for providing a vacant period, in which no communication data is present in one or more of communication frames, and inserting a first control signal which includes a pilot signal to be used for a transmission power control for a forward link in said vacant period.

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51. (Amended) A base station as set forth in claim 50, wherein said time interval of said first control signal inserted during said vacant period is set to be longer than a time interval of said first control signal in a communication mode where transmission data are present in said communication frame which does not include any vacant periods.

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52. (Amended) A base station as set forth in claim 49, wherein said transmission control means provides a vacant period from a timing immediately after a second control signal which includes a pilot signal to be used for a transmission power control for a forward link.

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54. (Amended) A base station as set forth in claim 49, wherein said transmission control means transmits a third control signal which includes a pilot signal to be used for a transmission power control for a forward link immediately after end of said vacant period.

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56. (Amended) A base station as set forth in claim 52, wherein said second control signal includes a pilot signal to be used for a transmission power control for a forward link.

57. (Amended) A base station as set forth in claim 54, wherein said third control signal includes a pilot signal to be used for a transmission power control for a forward link.

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59. (Amended) A base station as set forth in claim 52, wherein said second control signal includes a transmission power control information for reverse link.

62. (Amended) A base station as set forth in claim 52, wherein said second control signal includes a pilot signal to be used for a transmission power control for a forward link and a transmission power control information for reverse link.

63. (Amended) A base station as set forth in claim 54, wherein said third control signal includes a pilot signal to be used for a transmission power control for a forward link and a transmission power control information for reverse link.

72. (Amended) A mobile station in a mobile communication system, comprising:
quality measuring means for receiving a first control signal for maintaining a communication quality transmitted in a vacant period in which no communication data is present, in one or more of communication frames and measuring a reception quality on the basis of said first control signal; and
transmitting means for generating and transmitting a transmission power control information for a forward link according to said reception quality, wherein said first control signal includes a pilot signal to be used for demodulation of the communication data or a transmission power control for a forward link..

73. (Amended) A mobile station in a mobile communication system, comprising:

demodulation means for receiving a first control signal for maintaining a communication quality transmitted in a vacant period in which no communication data is present, in one or more of communication frames and demodulating a communication data using the first control signal, wherein said first control signal includes a pilot signal to be used for demodulation of the communication data or a transmission power control for a forward link..

74. (Amended) A mobile station in a mobile communication system, comprising:

means for receiving a first control signal for maintaining a communication quality transmitted in a vacant period in which no communication data is present, in one or more of communication frames and controlling a transmission power in a reverse link according to said first control signal,

wherein said first control signal includes a transmission power control information for reverse link.

75. (Amended) A mobile station in a mobile communication system, comprising:

quality measuring means for receiving a second control signal for maintaining a communication quality transmitted at a timing immediately before a vacant period in which no communication data is present, in one or more of communication frames and measuring a reception quality on the basis of said second control signal; and

transmitting means for generating and transmitting a transmission power control information for a forward link according to said reception quality,

wherein said second control signal includes a pilot signal to be used for demodulation of the communication data or a transmission power control for a forward link.

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76. (Amended) A mobile station in a mobile communication system, comprising:
demodulation means for receiving a second control signal for maintaining a communication quality transmitted at a timing immediately before a vacant period in which no communication data is present, in one or more of communication frames and demodulating a communication data using said second control signal,

wherein said second control signal includes a pilot signal to be used for demodulation of the communication data or a transmission power control for a forward link.

77. (Amended) A mobile station in a mobile communication system, comprising:
means for receiving a second control signal for maintaining a communication quality transmitted at a timing immediately before a vacant period in which no communication data is present, in one or more of communication frames and controlling a transmission power in a reverse link on the basis of said second control signal,

wherein said second control signal includes a transmission power control information for reverse link.

78. (Amended) A mobile station in a mobile communication system, comprising:

quality measuring means for receiving a second control signal for maintaining a communication quality transmitted at a timing immediately before a vacant period in which no communication data is present, in one or more of communication frames and receiving a third control signal for maintaining the communication quality transmitted at a timing immediately after said vacant period, and measuring a reception quality on the basis of said second or third control signal; and

transmitting means for generating and transmitting a transmission power control information for a forward link according to said reception quality,

wherein said second control signal includes a pilot signal to be used for demodulation of the communication data or a transmission power control for a forward link.

79. (Amended) A mobile station in a mobile communication system, comprising:

demodulation means for receiving a second control signal for maintaining a communication quality transmitted at a timing immediately before a vacant period in which no communication data is present, in one or more of communication frames and receiving a third control signal for maintaining the communication quality transmitted at a timing immediately after said vacant period, and demodulating a communication data using said second or third control signal,

wherein said second control signal includes a pilot signal to be used for demodulation of the communication data or a transmission power control for a forward link.

80. (Amended) A mobile station in a mobile communication system, comprising:

wherein said third control signal includes a pilot signal to be used for demodulation of the communication data or a transmission power control for a forward link.

demodulation means for receiving a second control signal for maintaining a communication quality transmitted at a timing immediately before a vacant period in which no communication data is present, in one or more of communication frames and receiving a third control signal for maintaining the communication quality transmitted at a timing immediately after said vacant period, and demodulating a communication data using said third control signal; and

means for controlling a transmission power in a reverse link on the basis of said second control signal,

wherein said third control signal includes a pilot signal to be used for demodulation of the communication data or a transmission power control for a forward link.

82. (Amended) A mobile station in a mobile communication system, comprising:

demodulation means for receiving a second control signal for maintaining a communication quality transmitted at a timing immediately before a vacant period in which no communication data is present, in one or more of communication frames and receiving a third control signal for maintaining the communication quality transmitted at a timing immediately after said vacant period, and demodulating a communication data using said third control signal;

quality measuring means for measuring a reception quality on the basis of said third control signal;

transmitting means for generating and transmitting a transmission power control information in a forward link according to the reception quality; and

means for controlling a transmission power in a reverse link on the basis of said second control signal,

wherein said third control signal includes a pilot signal to be used for demodulation of the communication data or a transmission power control for a forward link.

88. (Amended) A mobile station as set forth in claim 72, wherein said first control signal includes a pilot signal to be used for a transmission power control information for reverse link.

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89. (Amended) A mobile station as set forth in claim 75, wherein said second control signal includes a pilot signal to be used for a transmission power control information for reverse link.

90. (Amended) A mobile station as set forth in claim 78, wherein said third control signal includes a pilot signal to be used for a transmission power control information for reverse link.

Please add the following new claims:

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96. (New) A mobile communication system comprising:
transmission control means for providing a vacant period, in which no communication data is present, in one or more of communication frames, and
inserting a first control signal which includes a transmission power control information for reverse link in said vacant period.

97. (New) A mobile communication system as set forth in claim 96, wherein said transmission control means inserts said first control signal at a predetermined time interval.

98. (New). A mobile communication system as set forth in claim 97, wherein said time interval of said first control signal inserted during said vacant period is set to be longer than a time interval of said first control signal in a communication mode where transmission data are present in said communication frame which does not include any vacant periods.

99. (New). A mobile communication system as set forth in claim 96, wherein said transmission control means provides a vacant period from a timing immediately after a second control signal which includes a transmission power control information for a reverse link.

100. (New) A mobile communication system as set forth in claim 96, wherein said transmission control means transmits a third control signal which includes a pilot signal to be used for demodulation of the communication data or transmission power control for a forward link immediately after end of said vacant period.

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101. (New) A mobile communication system as set forth in claim 99, wherein said second control signal includes a pilot signal to be used for demodulation of the communication data or a transmission power control for a forward link.

102. (New) A mobile communication system as set forth in claim 100, wherein said third control signal includes a pilot signal to be used for demodulation of the communication data or a transmission power control for a forward link.

103. (New) A mobile communication system as set forth in claim 99, wherein said second control signal includes a transmission power control information for reverse link.

104. (New) A mobile communication system as set forth in claim 100, wherein said third control signal includes a transmission power control information for reverse link.

105. (New) A mobile communication system as set forth in claim 99, wherein said second control signal includes a pilot signal to be used for demodulation of the communication data or a transmission power control for a forward link and a transmission power control information for reverse link.

106. (New) A mobile communication system as set forth in claim 100, wherein said third control signal includes a pilot signal to be used for demodulation of the communication data or a transmission power control for a forward link and a transmission power control information for reverse link.

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107. (New) A mobile communication system as set forth in claim 96, wherein said vacant period is provided by compressing a transmission data in communication in a time link.

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108. (New) A mobile communication system as set forth in claim 96, wherein a communication mode is switched into a mode where said vacant period is provided at a predetermined time interval.

109. (New) A mobile communication system as set forth in claim 96, wherein a communication mode is switched into a mode where said vacant period is provided by issuing a notice from said base station to said mobile station.

110. (New) A mobile communication system as set forth in claim 96, wherein a communication mode is switched into a mode where said vacant period is provided by issuing a

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~~notice to said mobile station depending upon a link quality condition measured in said base station.~~

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111. (New) A mobile communication system as set forth in claim 96, wherein a communication mode is switched into a mode where said vacant period is provided by issuing a notice to said mobile station depending upon a congestion condition measured in said base station.

112. (New) A mobile communication system as set forth in claim 96, wherein a communication mode is switched into a mode where said vacant period is provided by issuing a notice from said mobile station to said base station.

113. (New) A mobile communication system as set forth in claim 96, wherein a communication mode is switched into a mode where said vacant period is provided by issuing a notice to said base station depending upon a link quality condition measured in said mobile station.

114. (New) A communication control method comprising:

providing a vacant period, in which no communication data is present, in one or more of communication frames, and
inserting a first control signal which includes a transmission power control information for reverse link in said vacant period, for transmission.

115. (New) A communication control method as set forth in claim 114, wherein said first control signal is inserted at a predetermined time interval.

116. (New) A communication control method as set forth in claim 115, wherein said time interval of said first control signal inserted during said vacant period is set to be longer than a time interval of said first control signal in a communication mode where transmission data are present in said communication frame which does not include any vacant periods.

117. (New) A communication control method as set forth in claim 114, wherein in said providing the vacant period, said vacant period is provided immediately after a second control signal which includes a transmission power control information for a reverse link.

118. (New) A communication control method as set forth in claim 114, wherein a third control signal which includes a pilot immediately after said vacant period.

119. (New) A communication control method as set forth in claim 117, wherein said second control signal includes a pilot signal to be used for demodulation of the communication data or a transmission power control for a forward link.

120. (New) A communication control method as set forth in claim 118, wherein said third control signal includes a pilot signal to be used for demodulation of the communication data or a transmission power control for a forward link.

121. (New) A communication control method as set forth in claim 117, wherein said second control signal includes a transmission power control information for reverse link.

122. (New) A communication control method as set forth in claim 118, wherein said third control signal includes a transmission power control information for reverse link.

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~~123. (New) A communication control method as set forth in claim 117, wherein said second control signal includes a pilot signal to be used for demodulation of the communication data or a transmission power control for a forward link and a transmission power control information for reverse link.~~

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~~124. (New) A mobile communication system as set forth in claim 118, wherein said third control signal includes a pilot signal to be used for demodulation of the communication data or a transmission power control for a forward link and a transmission power control information for reverse link.~~

125. (New) A communication control method as set forth in claim 114, wherein said vacant period is provided by compressing a transmission data in communication in a time direction.

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~~126. (New) A communication control method as set forth in claim 114, wherein a communication mode is switched into a mode where said vacant period is provided at a predetermined time interval.~~

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127. (New) A communication control method as set forth in claim 114, wherein a communication mode is switched into a mode where said vacant period is provided by issuing a notice from said base station to said mobile station.

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128. (New) A communication control method as set forth in claim 114, wherein a communication mode is switched into a mode where said vacant period is provided by issuing a notice to said mobile station depending upon a link quality condition measured in said base station.

129. (New) A communication control method as set forth in claim 114, wherein a communication mode is switched into a mode where said vacant period is provided by issuing a notice to said mobile station depending upon a congestion condition measured in said base station.

130. (New) A communication control method as set forth in claim 114, wherein a communication mode is switched into a mode where said vacant period is provided by issuing a notice from said mobile station to said base station.

131. (New) A communication control method as set forth in claim 114, wherein a communication mode is switched into a mode where said vacant period is provided by issuing a notice to said base station depending upon a link quality condition measured in said mobile station.

132. (New) A base station in a mobile communication system, comprising:
transmission control means for providing a vacant period, in which no communication data is present, in one or more of communication frames, and
inserting a first control signal which includes a transmission power control information for reverse link in said vacant period.

133. (New) A base station as set forth in claim 132, wherein said transmission control means inserts said first control signal at a predetermined time interval.

134. (New) A base station as set forth in claim 133, wherein said time interval of said first control signal inserted during said vacant period is set to be longer than a time interval of said first control signal in a communication mode where transmission data are present in said communication frame which does not include any vacant periods.

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135. (New) A base station as set forth in claim 132, wherein said transmission control means provides a vacant period from a timing immediately after a second control signal which includes a transmission power control information for a reverse link.

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136. (New) A base station as set forth in claim 132, wherein said transmission control means transmits a third control signal which includes a pilot signal to be used for demodulation of the communication data or transmission power control for a forward link immediately after end of said vacant period.

137. (New) A base station as set forth in claim 135, wherein said second control signal includes a pilot signal to be used for demodulation of the communication data or a transmission power control for a forward link.

138. (New) A base station as set forth in claim 136, wherein said third control signal includes a pilot signal to be used for demodulation of the communication data or a transmission power control for a forward link.

139. (New) A base station as set forth in claim 135, wherein said second control signal includes a transmission power control information for reverse link.

140. (New) A base station as set forth in claim 136, wherein said third control signal includes a transmission power control information for reverse link.

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141. (New) A base station as set forth in claim 135, wherein said second control signal includes a pilot signal to be used for demodulation of the communication data or a transmission power control for a forward link and a transmission power control information for reverse link.

142. (New) A base station as set forth in claim 136, wherein said third control signal includes a pilot signal to be used for demodulation of the communication data or a transmission power control for a forward link and a transmission power control information for reverse link.

143. (New) A base station as set forth in claim 132, wherein said vacant period is provided by compressing a transmission data in communication in a time direction.

144. (New) A base station as set forth in claim 132, wherein a communication mode is switched into a mode where said vacant period is provided at a predetermined time interval.

145. (New) A base station as set forth in claim 132, wherein a communication mode is switched into a mode where said vacant period is provided by issuing a notice from said base station to said mobile station.

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146. (New) A base station as set forth in claim 132, wherein a communication mode is switched into a mode where said vacant period is provided by issuing a notice to said mobile station depending upon a link quality condition measured in said base station.

147. (New) A base station as set forth in claim 132, wherein a communication mode is switched into a mode where said vacant period is provided by issuing a notice to said mobile station depending upon a congestion condition measured in said base station.

148. (New) A base station as set forth in claim 132, wherein a communication mode is switched into a mode where said vacant period is provided by issuing a notice from said mobile station to said base station.

149. (New) A mobile station in a mobile communication system, comprising:

quality measuring means for receiving a second control signal for maintaining a communication quality transmitted at a timing immediately before a vacant period in which no communication data is present, in one or more of communication frames and receiving a third control signal for maintaining the communication quality transmitted at a timing immediately after said vacant period, and measuring a reception quality on the basis of said second or third control signal; and

transmitting means for generating and transmitting a transmission power control information for a forward link according to said reception quality,

wherein said third control signal includes a pilot signal to be used for demodulation of the communication data or a transmission power control for a forward link.

150. (New) A mobile station in a mobile communication system, comprising:

demodulation means for receiving a second control signal for maintaining a communication quality transmitted at a timing immediately before a vacant period in which no communication data is present, in one or more of communication frames and receiving a third control signal for maintaining the communication quality transmitted at a timing immediately after said vacant period, and demodulating a communication data using said second or third control signal,

wherein said third control signal includes a pilot signal to be used for demodulation of the communication data or a transmission power control for a forward link.

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151. (New) A mobile station in a mobile communication system, comprising:

quality measuring means for receiving a second control signal for maintaining a communication quality transmitted at a timing immediately before a vacant period in which no communication data is present, in one or more of communication frames and receiving a third control signal for maintaining the communication quality transmitted at a timing immediately after said vacant period, and measuring a reception quality on the basis of said third control signal;

transmitting means for generating and transmitting a transmission power control information for a forward link according to said reception quality; and

means for controlling a transmission power in a reverse link on the basis of said second control signal,

wherein said second control signal includes a transmission power control information for reverse link.

152. (New) A mobile station in a mobile communication system, comprising:

demodulation means for receiving a second control signal for maintaining a communication quality transmitted at a timing immediately before a vacant period in which no communication data is present, in one or more of communication frames and receiving a third control signal for maintaining the communication quality transmitted at a timing immediately after said vacant period, and demodulating a communication data using said third control signal;

and

means for controlling a transmission power in a reverse link on the basis of said second control signal,

wherein said second control signal includes a transmission power control information for reverse link.

153. (New) A mobile station in a mobile communication system, comprising:

demodulation means for receiving a second control signal for maintaining a communication quality transmitted at a timing immediately before a vacant period in which no communication data is present, in one or more of communication frames and receiving a third control signal for maintaining the communication quality transmitted at a timing immediately after said vacant period, and demodulating a communication data using said third control signal;

quality measuring means for measuring a reception quality on the basis of said third control signal;

transmitting means for generating and transmitting a transmission power control information in a forward link according to the reception quality; and

means for controlling a transmission power in a reverse link on the basis of said second control signal,

wherein said second control signal includes a transmission power control information for reverse link.